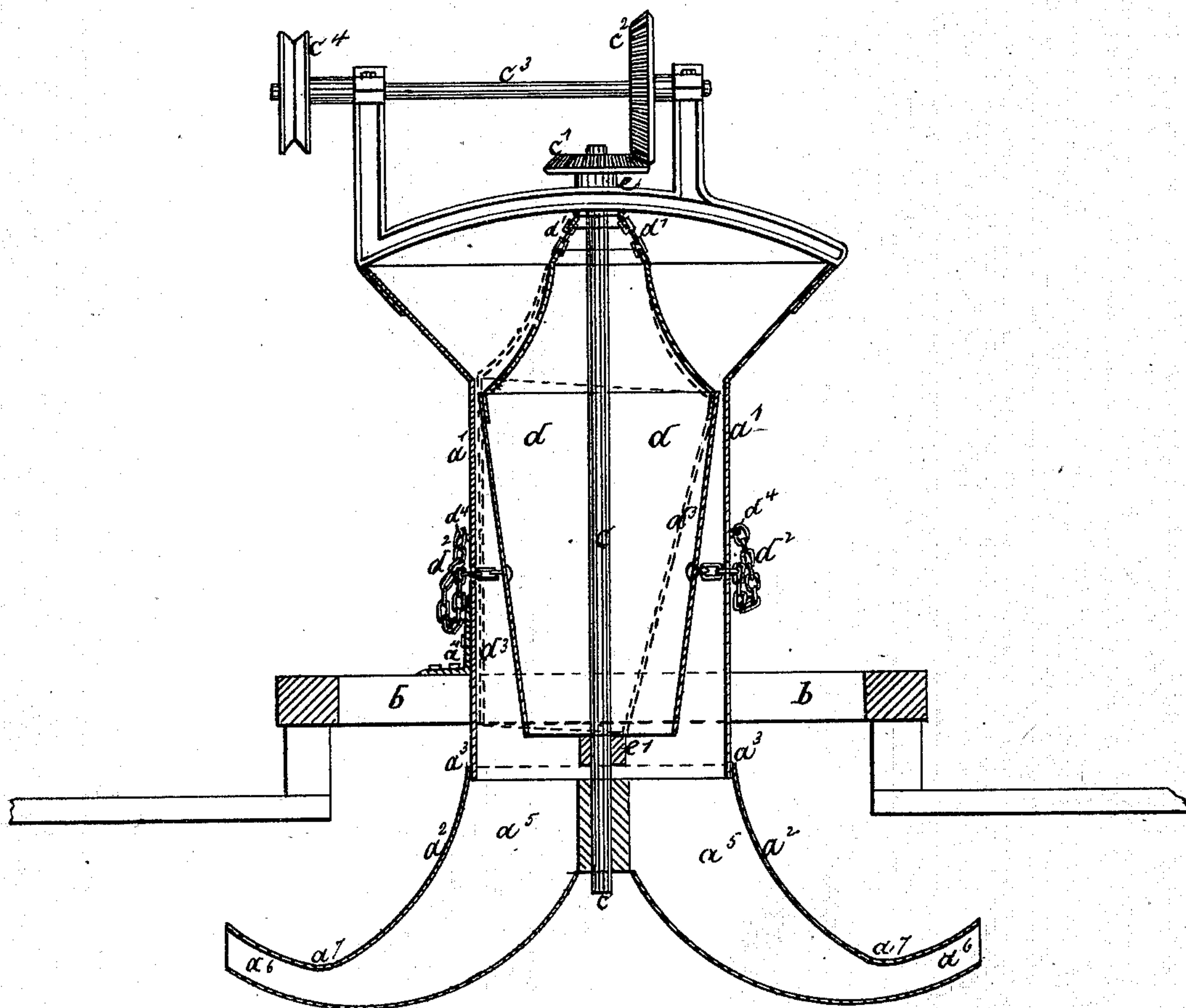


A. D. FOOTE.
Rotary Grain Distributers.

No. 144,753.

Patented Nov. 18, 1873.

Fig. 1.



Witnesses
A. T. Lacey
W. H. Kinckel

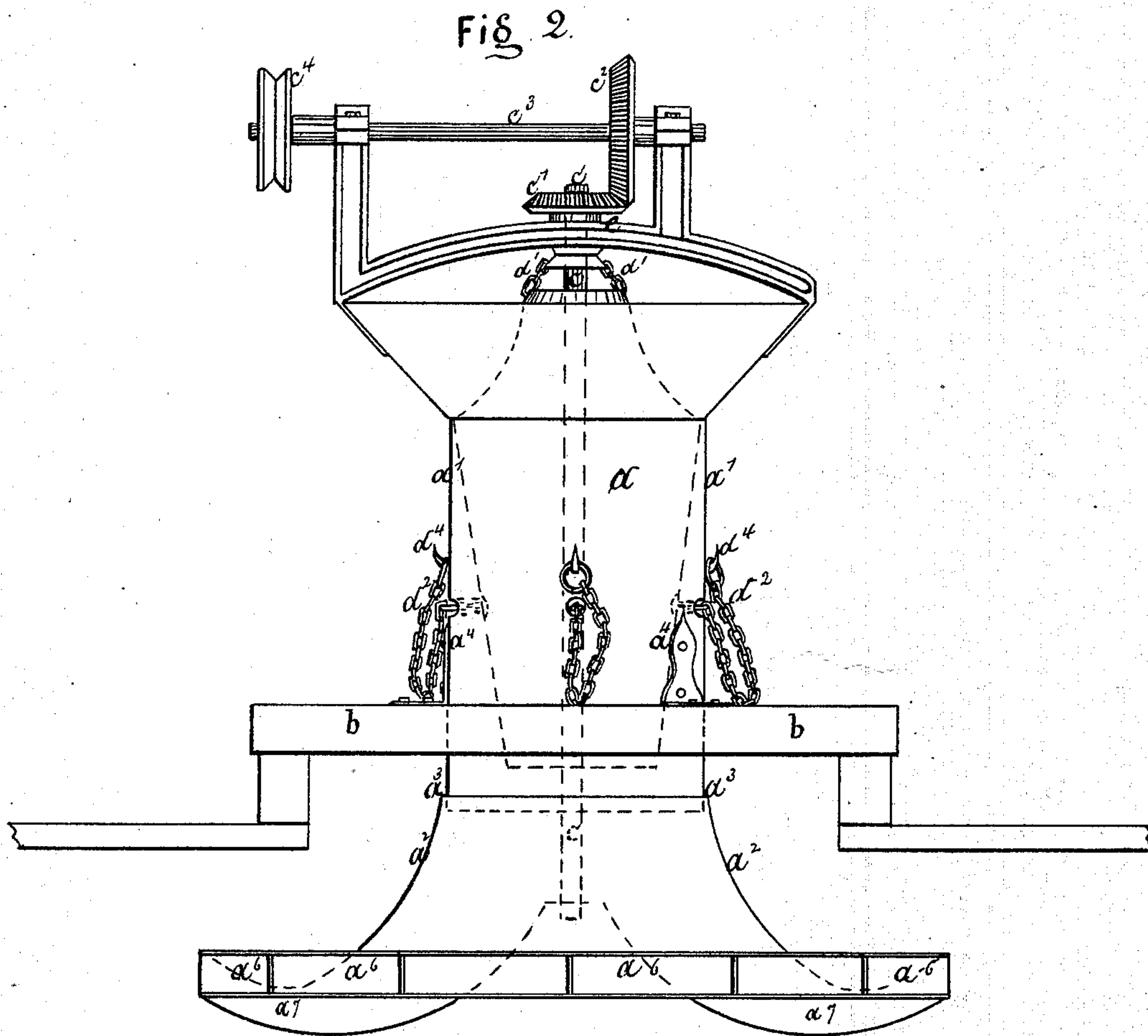
Inventor
A. D. Foote
by Colburn, Brooks & Co.
his attys.

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Fig. 4.

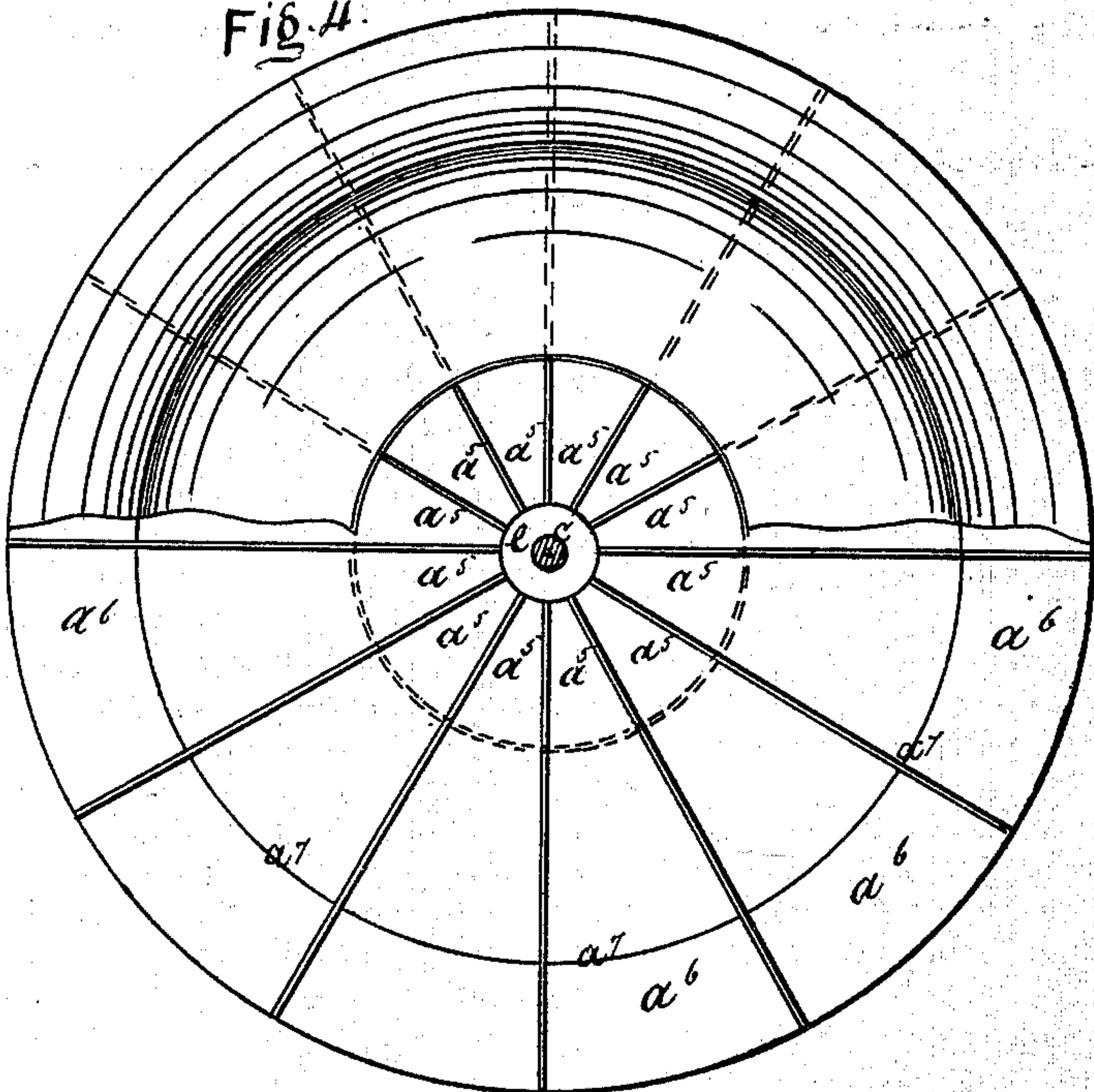
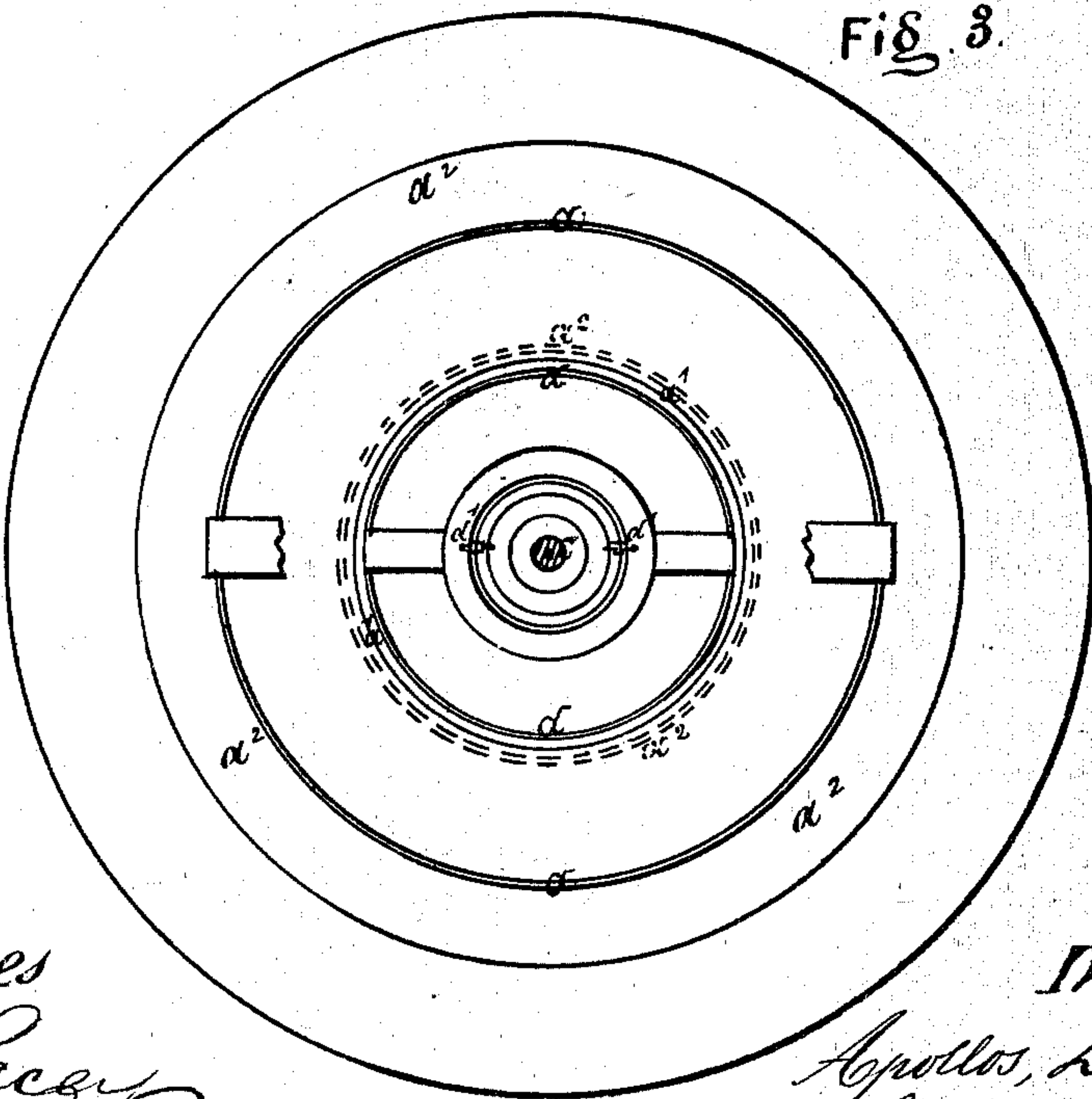


Fig. 3.



Witnesses
A. T. Lacey
W. H. Kinckel

Inventor
A. D. Foote
by Colborn, Brooks & Co.
his attys.

UNITED STATES PATENT OFFICE.

APOLLOS D. FOOTE, OF BERLIN, ASSIGNOR TO ALBERT M. HELMER, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN ROTARY GRAIN-DISTRIBUTERS.

Specification forming part of Letters Patent No. 144,753, dated November 18, 1873; application filed May 31, 1873.

To all whom it may concern:

Be it known that I, APOLLOS D. FOOTE, of Berlin, in the county of Green Lake and State of Wisconsin, have invented certain new and useful Improvements in Rotary Spouts or Grain-Distributers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in rotary grain-spouts or grain-distributers, whereby grain may be received from the elevator-spout and distributed in a vessel, barge, or other conveyance by centrifugal force, without necessitating the employment of manual labor for the purpose of trimming a vessel or barge so laden.

In carrying out my invention, the grain is discharged from the elevator-spout, or other source of supply, to a circular spout, divided into two parts, the upper of which is stationary, while the lower is supported and caused to revolve by means of a central axis mounted in suitable bearings, and is geared at its upper end with a horizontal shaft, which receives motion from a steam-engine, or other motive power. The revolving portion of the circular spout is divided by means of radial partitions into a series of compartments, and at its lower end is formed trumpet-shaped, thereby forming a series of curved grain-distributer spouts. Within the upper or stationary portion of the spout a conical grain-director is supported by chains or links, or other suitable means, in such manner that, when desired, it may be drawn to one or the other side of the spout, and thereby control the particular point at which the distributer-spouts of the revolving portion of the circular spout shall be supplied with grain. The object of controlling the supply of grain to a particular portion of the compartments of the revolving spout is, that when the revolving portion of the spout is set in motion, and the grain is supplied thereto, such grain may be discharged through the curved distributer-spouts, either in equal quantities

all round the apparatus, or in any given direction desired; but that my invention may be fully understood, I will proceed to describe the same more in detail by aid of the accompanying drawings.

Figure 1 shows a section, Fig. 2 a front elevation, and Fig. 3 a plan, of a revolving grain spout or distributer arranged according to my invention; and Fig. 4 is a plan view of the revolving portion of the grain-spout with part of the top plate removed.

a represents a circular spout, divided into two parts, *a*¹ *a*², at *a*³. The upper part *a*¹ is stationary, and is supported by brackets *a*⁴ from a frame, *b*, while the lower portion *a*² is supported and caused to revolve by means of the shaft or axis *c*, which revolves in bearings *e* *e'*, carried by the part *a*¹. The shaft *c* is caused to revolve by means of the beveled pinion *c*¹, which gears into a pinion, *c*², fixed on the horizontal shaft *c*³, to which motion is communicated by means of a pulley, *c*⁴, driven by a band from a steam-engine, or other motive power. The revolving portion *a*² is divided by means of the radial partitions *a*⁵ into a series of compartments, and at its lower end is trumpet-shaped, thereby forming a series of curved grain-distributer spouts, *a*⁶. Within the upper part *a*¹ a conical grain-director, *d*, is supported by means of chains *d*¹, or other suitable means, in such manner that, when desired, it may be drawn to one or the other side of the spout *a*, and thereby control the particular point at which grain passing down the spout *a* shall enter the distributing-spouts *a*⁶, and, consequently, the number of spouts *a*⁶ which at a given time shall receive grain. The object of thus controlling the supply of grain to the spouts *a*⁶ is, that when the part *a*² is caused to revolve the grain supplied thereto may be distributed either in equal quantities all round the apparatus, or in any given direction, as desired.

When the grain-director *d* is central, as shown by full lines in Fig. 1, grain will be distributed equally all round the apparatus; but when it is drawn to either side by means of one or other of the chains *d*², as shown by dotted lines *d*³, Fig. 1, more or less grain will

be distributed at any given point required. The point at which grain can be distributed by drawing the director d to any given point will vary, according to the velocity of revolution of the part a^2 .

When it is desired to load a vessel or other conveyance with grain, the apparatus is placed in position so that the frame b shall rest over the hatchway, and support the revolving part a^2 below such hatchway in position to discharge grain into the hold of a vessel.

It will be seen that the distributing-spouts a^6 at a^1 are curved slightly upward, in order that the grain may be distributed throughout the hold of a ship fully up to the deck above.

Although I have shown the apparatus driven by a pulley, I do not confine myself to any particular arrangement of gearing whereby the part a^2 may be caused to revolve, as the same may be greatly varied; and, in some cases, I mount a steam-cylinder on the side of the upper part a^1 , and connect the same with the shaft c . This, however, will be readily understood by any competent engineer.

d^4 are hooks, over which the links of the chains may be placed in order to retain the director d in any desired position. Levers or rods, or any other suitable means, may, however, be employed in place of the chains.

By causing the apparatus to revolve in different directions, grain may be readily distributed on each side of the center-board of vessels equally, so that all necessity for the employment of manual labor for the purpose of trimming the same is avoided.

Having thus described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. A revolving spout for the purpose of distributing grain in the holds or other parts of vessels, barges, and other conveyances, substantially as described.

2. A conical grain-director arranged to control the supply of grain to revolving distributing spouts or tubes, substantially as described.

3. A grain-spout, a , divided into two parts, a^1 a^2 , one of which is stationary, and the other caused to revolve, substantially as described.

4. A grain-spout, a , having a stationary part, a^1 , grain-director d , and a revolving part, a^2 , provided with a series of distributing-spouts, a^6 , substantially as described.

5. In a grain spout or distributor, the combination of the stationary part a^1 , grain-director d , shaft c , revolving part a^2 , substantially as described.

6. In combination with the stationary part a^1 of a grain spout or distributor, a , and a grain-director, d , supported by chains or other suitable means, and capable of adjustment by chains or their equivalents, a series of distributing-spouts, a^6 , supported by and caused to revolve with a shaft, c , substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of May, 1873.

APOLLOS D. FOOTE.

Witnesses:

JAMES A. BIGGERT,
JOS. YATES.